

2. DESCRIPTION OF ALTERNATIVES

This section of the environmental assessment provides an overview of how different INEEL wildland fire management strategies relate to each other. Each management strategy discusses pre-fire, fire suppression and post-fire activities such as creating defensible space around facilities and SCAs, implementing minimum impact suppression tactics (MIST), using water cannons and “snow” fences to prevent blowing dust, and restoring soil damaged by fire response activities (Section 2.1). The document presents four different approaches or alternatives to wildland fire management at the INEEL: (1) Maximum Fire Protection Approach – Alternative 1, (2) Balanced Fire Protection Approach – Alternative 2, and (3) Protect Infrastructure and Personnel Safety Approach – Alternative 3 (see Section 2.2). The details of each alternative are found in Table 2-1. In addition, this document considers No Action or the Traditional Fire Protection Approach as Alternative 4.

The wildland fire management activities are discussed in detail in the following sections under Pre-Fire, Fire Suppression and Post-Fire activities (see inset).

2.1. Wildland Fire Management Activities

2.1.1. Pre-Fire Activities

Fuel Management Zones – Fuel management zones are defined as wildland areas that are maintained with reduced fuel levels to limit flame lengths and the spread of fire across an area. Fuel management zones increase the probability that wildland fires can be controlled when they encounter the reduced fuel load zone. Fuel management zones provide separation between large segments of wildland habitat from areas with human-caused fire history, such as along roadways.

Fuel management zones would be treated to reduce fuel loading by such methods as (1) periodic mowing vegetation with rubber tired mowers, (2) burning vegetation with *prescribed fire*, or (3) allowing livestock grazing.

Road Improvements (unimproved roads – see inset) – A rapid, aggressive, initial attack of wildland fires is critical to achieve an early fire suppression objective. The INEEL could maintain a network of passable roads that allows emergency access to all sections of the INEEL wildlands. Upgrading unimproved roads would be limited to filling ruts with gravel or dirt and leveling the fill material. Generally, blading or fill is necessary to remove obstacles that restrict or make passage difficult such as extensive washouts, rutting, or dunes. Improvements would be restricted to only those segments where they are necessary.

Defensible Space – Defensible spaces are areas between improved property and a potential wildland fire where the combustibles have been removed or modified with the intent to: (1) protect life and property from wildfire, (2) reduce the potential for fire on improved property from spreading to wildland fuels,

Wildfire Management Activities

- **Pre-Fire Activities**
 - Implementing fuel management zones
 - Improving unimproved roads
 - Creating defensible space
 - Establish a Wildland Fire Management Committee
- **Suppression Activities**
 - Implementing a staged response
 - Implementing direct, indirect, or parallel tactics
 - Implementing MIST
- **Post-Fire Activities**
 - Controlling and suppressing dust
 - Implementing site restoration
 - Establish a Wildland Fire Management Committee

Road Designations

Improved roads are United States and State Highways (such as US Hwy 20/26, 20 and State Hwy 22 and 33) bisecting the site, and INEEL interior roads, site area approach roads and streets and gravel roads.

Unimproved roads are those INEEL dirt and two-track roads and some trails, often designated as “T” roads (such as T-1, T-5, T-20).

and (3) provide a safe working area for firefighters protecting life and improved property. All significant INEEL structures, systems, and components located at the wildland/facility interface¹ would have a defensible space. These include buildings of value, parking lots, storage areas, high-value field equipment (such as drill rigs), and utility system components (such as transformers, substations, propane tanks, storm water injection wells, wastewater treatment facilities). One or more of the following methods can provide defensible space:

- Irrigating area perimeters, lay down yards, and other structures
- Paving or placing gravel over areas
- Mowing vegetation
- Blading with or without sterilization
- Prescribed fire.

In general, a defensible space of 30-ft is adequate for most INEEL structures. Defensible spaces in excess of 30-ft but not more than 100-ft are required in situations where improved property is at greater risk (combustible construction material, heavy fuel loading upwind of structure, etc.). The INEEL would implement some level of defensible space in all of the proposed alternatives.

Wildland Fire Management Committee – ~~The INEEL could establish a~~ Wildland Fire Management Committee ~~to~~ would provide recommendations to the DOE Idaho Operations Office (DOE-ID) manager for pre-fire and post-fire activities and to facilitate the implementation of those activities. The committee would consist of proponents of cultural resources, threatened and *endangered* (T&E) species, vegetation, wildlife, soils, watersheds, air, the Sagebrush Steppe Reserve, the NERP, National Environmental Policy Act (NEPA), Fire Marshall, Fire Department, GIS specialist and INEEL operations. Additional resource advisors could be added when specific technical advice is required or other resources are impacted. The committee would convene to develop recommendations for pre-fire, fire suppression, and post-fire activities related to the long-term management of vegetation to minimize fuel loading and fire potential at the INEEL.

The Wildland Fire Management Committee would support a resource advisory function during fire suppression activities to provide consultation to the on-scene commander and evaluate the suppression strategy. Tactical fire suppression decisions would be evaluated in the field for potential impacts to natural resources. This consultation would provide a mechanism for informal decisions regarding environmental impacts and minimize impacts to the extent feasible. A standardized mapping system that effectively identifies environmental resource areas of concern ~~should~~ could be established to support on-scene planning.

The Wildland Fire Management Committee would meet following large fires. If hazardous conditions exist after the fire (fugitive dust on roads, SCAs exposed, etc.), the committee would meet within 24 hours of the fire being declared “out” and develop a plan to mitigate hazardous conditions. If such conditions do not exist, the committee would meet within one week of the fire. The post-fire objectives of the committee include:

- Locating and stabilizing fugitive dust source areas that pose a direct threat to human health and safety, property, and critically important cultural and natural resources
- Preventing irreversible loss of natural and cultural resources, and the information they may provide
- Developing a restoration plan and a schedule

¹ Wildland/facility interfaces are management as traditional wildland/urban interfaces. They reflect a defined boundary between INEEL improved property and INEEL wildlands.

- Conducting immediate post-fire reconnaissance for fire suppression impacts to natural and cultural resources, including species protected under the ESA
- Providing long-term monitoring recommendations.

The committee would provide the DOE-ID manager with recommendations to meet these objectives in the form of a plan. The plan would be presented to the manager or [designated](#) representative within 2 weeks of the fire for approval. Annual modifications to that plan may be required until restoration is complete. Activities in the plan could range from natural recovery (no action) to any of those described in the following alternatives (see Section 2.2). This planning effort would be limited to INEEL fires, and plans would be formulated as determined necessary by the committee, based on the significance of potential impacts.

2.1.2. Fire Suppression Activities

Staged Response Strategy – Staged response refers to a level of response needed to support a containment objective during the first burning period. During the early portions of the wildland fire season, when fire danger ratings are low to moderate, a single heavy wildland unit, supporting off-road water tender, and a chase vehicle is dispatched as an initial response. In general, fires that occur during these conditions are fought directly with water and/or foam lines applied to knock down flames. A *wet line* and *cold-trailing* operation with shovels is generally adequate to contain and extinguish the fire.

During the peak fire season, when fire danger ratings are high to extreme, a heightened response is implemented. A heightened initial response would include a minimum of two heavy wildland units, supporting water tender, supporting chase vehicle and the dispatching of a dozer or grader to the scene. Additional offsite resources are generally requested during the initial response. Fires that occur during these conditions have the potential to exhibit extreme fire behavior. An aggressive initial attack strategy is critical in achieving the early fire containment objective. Fires that initiate and remain in light fuels can be adequately contained with direct attack, with the use of wet lines and cold-trailing in many situations. Fires that encounter large sections of medium to heavy fuel loads generally require a combination of fire suppression tactics, often supported by aerial delivery of chemical retardant and/or water, to contain the fire. Those fires produce high flame lengths and high rates of flame spread and often result in large fire areas. Such fire behavior generally requires the construction of graded containment lines to support containment objectives. Aerial application of chemical retardant and/or water is recommended for initial control efforts for fires during these conditions, particularly where natural or manmade barriers are not present to prevent significant fire spread. The aggressive response strategy during peak fire conditions offers the greatest chance of minimizing the fire size and associated impacts.

Direct, Indirect, and Parallel Tactics – Direct attacks are made directly on the fire's edge or perimeter. The flames are knocked down by dirt or water and a follow-up containment line constructed by hand or with dozer/grader blades and generally treats the fire edge. In some situations, a containment line is constructed close to the fire's edge and the fuel between the containment line and the fire is burned out or the fire is allowed to burn to the containment line. Firefighters are placed directly at the fire's edge. Direct attack is limited to low intensity fires (flame lengths less than 4-ft) that allows firefighters to work safely close to the fire. Direct tactics are generally limited to fires burning in light fuels or fuels with high moisture content burning under light wind conditions. Direct tactics are most effective early in the fire season, when fuel loads are light and fire danger conditions are low to moderate.

Indirect tactics are made some distance from the fire. Indirect tactics include building a containment line some distance from the fire edge and burning the unburned fuel between the containment line and the fire edge. Indirect tactics take advantage of natural and manmade barriers as containment lines. Generally, indirect tactics are used on hot fires with flame lengths greater than 4-ft and high rates of spread or where

direct tactics are not possible. Indirect tactics are often necessary to support containment of fires involving medium and heavy fuels and high to extreme fire danger conditions.

Parallel tactics are made by constructing a containment line parallel to, but further from, the fire edge than in direct tactics. Parallel tactics may shorten containment line construction by cutting across unburned fuels. In many cases, the fuel between the containment line and the fire edge must be burned in conjunction with containment line construction to effectively check the fire.

Minimum Impact Suppression Tactics – MIST emphasizes suppressing a wildland fire with the least impact on the land. Actual fire conditions and good judgment dictate actions taken. Firefighter and public safety would not be compromised nor would the overall objective of property protection and early containment. Appropriate actions are taken based on the fire's potential to spread and cause damage to resources, including mature sagebrush, at the particular location of the fire (see inset).

2.1.3. Post-Fire Activities

Dust Suppression – The INEEL could use chemical and physical methods such as soil tackifier, surfactants, or mulch to minimize fugitive dust following wildland fires, including dust from SCAs. In addition, the INEEL may use other methods to control dust, such as water cannons around facilities and snow fences upwind of facilities.

Site Restoration – The INEEL could implement the following site restoration guidelines. The Wildland Fire Management Committee (see below) would could determine the restoration activities for the burn area.

- Inventory the burned area for fire and fire suppression impacts to resources
- Fill in deep and wide containment lines and cup trenches and recontour containment lines
- Waterbar newly created roads or containment lines, as necessary, to prevent erosion, or use woody material to act as sediment dams
- Scatter in a natural pattern large-size brush or trees cut during containment line construction
- Install sediment controls to prevent sedimentation of waterways and wastewater treatment basins
- Remove debris and sediment from waterways (check annually)
- Restore helicopter landing sites, equipment staging sites, and similarly disturbed areas
- Control all noxious weeds
- Evaluate necessity to revegetate all or portions of the burn or areas impacted by fire suppression activities using native species by broadcast seeding, drilling, containerized stock or *wildings*
- Use seeds, containerized stock, or wildings from local collections of site-adapted stock

Minimum Impact Suppression Tactics

Containment line Construction

- Light Fuels Phase:
 - Use water or foam and cold-trail tactic to create containment lines
 - Allow fires to burn to natural barrier
 - When using mechanical methods to construct containment lines:
 - Use minimum width and depth to check fire spread
 - Use tilted blades
 - Use parallel tactics to minimize containment lines
 - Place containment lines to minimize impact on significant environmental resources including waterways, swales, draws, sagebrush stands
- Medium/Heavy Fuels Phases:
 - Allow use of natural barriers and cold-trailing
 - Cool with dirt and water, and cold-trailing
 - When using mechanical methods to construct containment lines:
 - Use minimum width and depth to check fire spread
 - Use tilted blades
 - Use parallel tactics to minimize containment lines
 - Place containment lines to minimize impact on significant environmental resources including waterways, swales, draws, sagebrush stands
 - Anchor indirect tactics to natural and manmade barriers
 - Avoid creating containment lines next to existing roads, if the road is an adequate barrier.

Mop-up

- Use cold-trail tactics adjacent to unburned fuels, including interior pockets to detect hot areas
- Minimize soil disturbing activities (restrict to hot areas near containment line only)
- Use thermal detection devices along perimeter to detect hot spots.

- Base decision to revegetate ~~on~~ an area on inventories of affected areas for natural recovery that approaches pre-fire densities of native species
- Use GIS to map all areas receiving restoration treatments
- Prohibit off-road vehicles from using burned area
- Continue monitoring until restoration is complete
- Remove all signs of human activity (such as plastic flagging, litter, spills)
- Conduct surveys of affected areas, associated with burn suppression activities, such as containment lines and equipment staging areas, and to assess damage to cultural and natural resources
- Prepare and submit an environmental checklist, before any site restoration activities, to document environmental impacts from fire suppression activities and provide feedback to align potential impacts with those analyzed in this environmental assessment.

In addition, the INEEL would establish a Wildland Fire Management Committee to provide recommendations to the DOE Idaho Operations Office (DOE-ID) manager for pre- and post-fire activities and to facilitate the implementation of those activities (see Section 2.1.1).

2.2. Alternatives

Table 2-1 summarizes and compares the pre-fire, fire suppression, and post-fire wildland fire management activities across all four alternatives. A short description of each alternative is given below, along with major differences between alternatives.

2.2.1. Alternative 1 – Maximum Fire Protection Approach

~~Alternative 1 would meet the INEEL Infrastructure management goals related to minimizing the vulnerability of INEEL personnel and property to wildland fire damage by minimizing fire size and duration. In addition, this alternative would best achieve Infrastructures' goals to minimize or eliminate contamination spread should a wildland fire threaten an SCA.~~

Alternative 1, the Maximum Fire Protection Approach includes the implementation of full pre-fire, fire suppression and post-fire activities. Elements of this alternative focus on creating firebreaks along improved and unimproved roads, around facility perimeters and power poles, and creating defensible space around SCAs. Once a fire begins, the INEEL Fire Department would use wildland units, aerial support, and other means available through agreements with state and federal agencies to aggressively fight the fires. Following fires, the INEEL would focus efforts to mitigate impacts caused by the emergency response actions through cultural and wildlife/habitat surveys and restoration activities, such as replanting with native species. This alternative would protect all SCAs. This alternative includes the creation of a Wildland Fire Management Committee to provide recommendations on wildland fire management to DOE-ID. This alternative would not use MIST (see Section 2.1).

2.2.2. Alternative 2 – Balanced Fire Protection Approach

~~Alternative 2 would meet most of the INEEL Infrastructure management goals related to minimizing the vulnerability of the INEEL personnel and property to wildland fire damage. Fire size and duration would be slightly greater than with Alternative 1.~~

Alternative 2, the Balanced Fire Protection Approach includes pre-fire, fire suppression and post-fire activities. In developing this approach, DOE considered the needs of protecting infrastructure and the natural resources of the INEEL. The Balanced Fire Protection Approach differs from the Traditional Fire Protection Approach (see Section 2.2.4), by taking into consideration the long-term management of native vegetation to minimize fuel loading and fire potential at the INEEL. This alternative includes the creation

of a Wildland Fire Management Committee to provide recommendations on wildland fire management to DOE-ID. As in Alternative 1, the Fire Department would aggressively fight fires; however, they would use MIST when considering initial attack (as feasible) and mop-up tactics to minimize impacts from fire suppression activities (see Section 2.1).

2.2.3. Alternative 3 – Protect Infrastructure and Personnel Safety Approach

~~Alternative 3 would not meet most of the INEEL Infrastructure management goals. While the goals for this alternative would protect infrastructure and provide Personnel safety, it would not minimize damage to sagebrush stands. Allowing wildland fires to burn would not meet the objective to minimize the potential to impact adjacent public and private lands.~~

Alternative 3, the Protect Infrastructure and Personnel Safety Approach, includes only those activities identified as necessary to protect primary INEEL facilities including those pre-fire activities judged necessary to provide a safe space for firefighters within the site areas. The Fire Department would take no actions to protect SCAs, National Oceanic and Atmospheric Administration (NOAA) stations, or similar sites within the INEEL boundaries. The Fire Department would only fight fires that threatened primary INEEL facilities, letting others burn. This alternative would not use MIST in conjunction with fire suppression activities (see Section 2.1).

2.2.4. Alternative 4 – No Action or Traditional Fire Protection Approach

~~Alternative 4 would meet most of the INEEL Infrastructure management goals. However, this alternative would not meet the specific objective related to restoration of disturbed areas by pre fire, fire suppression and post fire activities.~~

Alternative 4, the No Action or Traditional Fire Protection Approach would continue INEEL's traditional pre-fire, fire suppression and post-fire activities. That is, the INEEL would continue to prepare for fires by doing an annual assessment of fuel loads and mowing vegetation or blading areas that represent a risk to infrastructure or people. In addition, once a fire starts, the INEEL would use similar tactics as in the Maximum Fire Protection Approach alternative to extinguish the fire. The INEEL would not mitigate impacts to the environment from emergency response activities, such as soil disturbance or vegetation removal. The Traditional Fire Protection Approach would not include aggressive pre-fire activities such as mowing vegetation along unimproved roads, but would continue to fight fires aggressively (see Section 2.1).

Table 2-1. Comparison of INEEL wildland fire management strategies and actions – pre-fire, fire suppression, and post-fire.			
Wildland Fire Management Strategy			
Maximum Fire Protection Approach Alternative 1	Balanced Fire Protection Approach Alternative 2	Protect Infrastructure and Personnel Safety Approach Alternative 3	No Action -- Traditional Fire Protection Approach Alternative 4
Pre-Fire Actions ¹			
Wildland Fire Management Committee <ul style="list-style-type: none"> Put into operation a Wildland Fire Management Committee to address pre-fire activities. 	Wildland Fire Management Committee <ul style="list-style-type: none"> Same as Alternative 1. 	Wildland Fire Management Committee <ul style="list-style-type: none"> None 	Wildland Fire Management Committee <ul style="list-style-type: none"> None
Fuel Management Zones Along Improved Roads <ul style="list-style-type: none"> Reduce vegetation along the following highways and roads that pass through or border the INEEL: <ul style="list-style-type: none"> A minimum of 10-ft and maximum of 300-ft on each side of State Highways 20, 26, and 20/26 (<u>~90 to 2,600 acres</u>). A minimum of 10-ft and maximum of 50-ft along each side of State Highways 22, 28, and 33 (<u>~120 to 610 acres</u>). A minimum of 10-ft and maximum of 50-ft along: <ul style="list-style-type: none"> Each side of Lincoln Boulevard and Adams Boulevard from Lincoln Boulevard to RWMC (<u>~80 to 400 acres</u>). Approach roads to the Gun Range Facility, ANL-W, INTEC, TRA, NRF, AWROC, and SMC site areas (<u>~20 to 110 acres</u>). A minimum of 100-ft to a maximum of 300-ft around all INEEL gun ranges (<u>~210 to 630 acres</u>). Mow a 5- to 10-ft strip along facility perimeter roads (<u>~10 to 20 acres</u>). 	Fuel Management Zones Along Improved Roads <ul style="list-style-type: none"> Same as Alternative 1. 	Fuel Management Zones Along Improved Roads <ul style="list-style-type: none"> Reduce vegetation a minimum of 100- ft to a maximum of 300- ft around all INEEL gun ranges (<u>~210 to 630 acres</u>). Mow a 5- to 10-ft strip along facility perimeter roads (<u>~10 to 20 acres</u>). 	Fuel Management Zones Along Improved Roads <ul style="list-style-type: none"> Mow a 5- to 10-foot strip along the major highways within the INEEL including Approach roads to the Gun Range Facility, ANL-W, INTEC, TRA, NRF, PBF/WROC, and SMC site areas. Reduce vegetation a minimum of 100- ft to a maximum of 300- ft around all INEEL gun ranges. Mow a 5- to 10-ft strip along facility perimeter roads.
Fuel Management Zones Along Unimproved Roads <ul style="list-style-type: none"> Remove the vegetation by blading along the following unimproved roads 16 ft from the middle of the road to each side (a total of 126 miles): <ul style="list-style-type: none"> T-3 road from Highway 33 to Highway 20 (<u>~90 acres</u>). T-1 road from the west boundary of the site to the south boundary along border to T-13/T-16 roads (<u>~130 acres</u>). T-4 road from Highway 20 to the intersection of T-9 road east boundary of the site (<u>~40 acres</u>). T-5 road from the west boundary of the site to 	Fuel Management Zones Along Unimproved Roads <ul style="list-style-type: none"> None. 	Fuel Management Zones Along Unimproved Roads <ul style="list-style-type: none"> None. 	Fuel Management Zones Along Unimproved Roads <ul style="list-style-type: none"> None

¹ See Section 2.1.1 for full description of pre-fire activities (wildland fire management committee, fuel management, road improvements, and defensible space).

Table 2-1. Comparison of INEEL wildland fire management strategies and actions – pre-fire, fire suppression, and post-fire.			
Wildland Fire Management Strategy			
Maximum Fire Protection Approach Alternative 1	Balanced Fire Protection Approach Alternative 2	Protect Infrastructure and Personnel Safety Approach Alternative 3	No Action -- Traditional Fire Protection Approach Alternative 4
<p>Lincoln Boulevard and T-20 road from Lincoln Boulevard to the east boundary (~70 acres).</p> <ul style="list-style-type: none"> o T-9 road from the west boundary of the site to the east boundary (~120 acres). o T-17 road from Portland Avenue to Highway 28 (~90 acres). o T-20 road from the intersection of Lincoln Boulevard east to the intersection with the T-4 road (~660 acres). 			
<p>Unimproved Road Upgrade</p> <ul style="list-style-type: none"> • Improve and maintain the following strategic unimproved roads: <ul style="list-style-type: none"> o Unimproved roads T-5, 9, 12, 13, 16, 20, 22, 23, and 24 should be a 12-ft minimum wide, smooth surface with blade and fill as necessary to achieve vehicle speeds of 40 mph (~320 acres). o Sign all unimproved roads at intersections and at the head of the unimproved road. 	<p>Unimproved Road Upgrade</p> <ul style="list-style-type: none"> • Maintain the following strategic unimproved roads as passable for 4x4 equipment: <ul style="list-style-type: none"> o T-12, T-13 and main street from intersection of T-13 to State Highway 20/26, T-16, T-4, T-3, T-5, T-20, T-9, and Existing Power Line Roads. o Sign all unimproved roads at intersections and at the head of the unimproved road. <p><i>Note: Upgrading unimproved roads would be limited to filling ruts with gravel or dirt and leveling the fill material. Grading unimproved roads to maintain as passable would not be allowed without further specific environmental review, such as an environmental checklist.</i></p>	<p>Unimproved Road Upgrade</p> <ul style="list-style-type: none"> • None. 	<p>Unimproved Road Upgrade</p> <ul style="list-style-type: none"> • Maintain the following unimproved roads as necessary to provide emergency access: <ul style="list-style-type: none"> o T-3 road from Highway 33 to Highway 20. o T-1 road from the west boundary of the site to the south boundary along border to T-13/T-16 roads. o T-4 road from Highway 20 to the intersection of T-9 road east boundary of the site. o T-5 road from the west boundary of the site to Lincoln Boulevard and T-20 road from Lincoln Boulevard to the east boundary. o T-9 road from the west boundary of the site to the east boundary. o T-17 road from Portland Avenue to Highway 28. o T-20 road from the intersection of Lincoln Boulevard east to the intersection with the T-4 road.
<p>Defensible Space</p> <ul style="list-style-type: none"> • Provide defensible space by: <ul style="list-style-type: none"> o Maintaining a 30- to 50-ft area around all INEEL buildings, structures and significant support equipment. o Maintain a 30-ft area around parking lots, storage pads, designated buildings, designated perimeters, designated propane and fuel tanks, substations, and along the rail system within the INEEL. o Mowing or sterilizing a 30- to 100-ft area around fenced perimeters, and maintaining as required at TRA, INTEC, RWMC, WRRTF, EBR-1, NRF, and ANL-W (~90 to 300 acres). o Sterilizing a 30- to 100-ft perimeter and maintain as required at TAN, SMC, 	<p>Defensible Space</p> <ul style="list-style-type: none"> • Provide defensible space by: <ul style="list-style-type: none"> o Maintaining a 30- to 50-ft area around all INEEL buildings, structures and significant support equipment. o Maintain a 30-foot area around parking lots, storage pads, designated buildings, designated perimeters, designated propane and fuel tanks, substations, and along the rail system within the INEEL. o Mowing a 30- to 100-ft perimeter around ARA-23 and BORAX-02 sites (~20 to 80 acres). o Installing fixed or mobile irrigation systems (including water cannons), as necessary designated by site conditions, to expand defensible space around perimeter areas, lay 	<p>Defensible Space</p> <ul style="list-style-type: none"> • Provide defensible space by: <ul style="list-style-type: none"> o Maintaining a 30- to 50-ft area around all INEEL buildings, structures and significant support equipment. o Maintain a 30-ft area around parking lots, storage pads, designated buildings, designated perimeters, designated propane and fuel tanks, substations, and along the rail system within the INEEL. o Maintaining a 30-ft area around all fenced perimeter areas (TRA, INTEC, RWMC, WRRTF, EBR-1, NRF, ANL-W) (~90 to 300 acres). o Sterilizing a 30- to 100-ft perimeter and maintain as required at TAN, SMC, 	<p>Defensible Space</p> <ul style="list-style-type: none"> • Provide defensible space by: <ul style="list-style-type: none"> o Maintaining a 30- to 50-ft area around all INEEL buildings, structures and significant support equipment. o Maintain a 30-ft area around parking lots, storage pads, designated buildings, designated perimeters, designated propane and fuel tanks, substations, and along the rail system within the INEEL. o Installing fixed or mobile irrigation systems (including water cannons), as designated by site conditions, necessary to expand defensible space around perimeter areas, lay down yards, and other structures.

Table 2-1. Comparison of INEEL wildland fire management strategies and actions – pre-fire, fire suppression, and post-fire.			
Wildland Fire Management Strategy			
Maximum Fire Protection Approach Alternative 1	Balanced Fire Protection Approach Alternative 2	Protect Infrastructure and Personnel Safety Approach Alternative 3	No Action -- Traditional Fire Protection Approach Alternative 4
<p>PBF/WROC, and CFA east, south and west perimeters (<u>-90 to 300 acres</u>).</p> <ul style="list-style-type: none"> o Blading or mowing a 30-ft minimum to 150-foot maximum clear perimeter around all SCAs that exceed no action thresholds, as well as the BORAX-02 site (<u>-90 to 460 acres</u>). o Mowing or sterilizing a 30-ft minimum to 100-ft maximum clear perimeter around all the NOAA and other government agencies sites (<u><1 acre</u>). o Mowing a 15-ft radius around power poles. o Installing fixed or mobile irrigation systems (including water cannons), as <u>designated by site conditions, necessary</u> to expand defensible space <u>around perimeter areas, lay down yards, and other structures</u>. o Conducting prescribed burns to eliminate excessive fuel loads. 	<p><u>down yards, and other structures</u>.</p>	<p>PBF/WROC, and CFA east, south and west perimeters (<u>-90 to 300 acres</u>).</p> <ul style="list-style-type: none"> o Installing fixed or mobile irrigation systems (including water cannons), as <u>designated by site conditions, necessary</u> to expand defensible space <u>around perimeter areas, lay down yards, and other structures</u>. 	
Fire Suppression Actions ¹			
Staged Response <ul style="list-style-type: none"> • The INEEL <u>will</u> use a staged response. 	Staged Response <ul style="list-style-type: none"> • The INEEL <u>will</u> use a staged response. 	Staged Response <ul style="list-style-type: none"> • The INEEL <u>will not</u> use a staged response because there is no containment objective for Alternative 3. INEEL would respond as needed to protect facilities. 	Staged Response <ul style="list-style-type: none"> • The INEEL <u>will</u> use a staged response.
Direct Tactics <ul style="list-style-type: none"> • The INEEL <u>will</u> use the following direct tactics: <ul style="list-style-type: none"> o Hose line application of water and/or foam suppressants on burning vegetation from off-road fire-fighting equipment o Aerial delivery of water and/or chemical retardant from helicopters and air tankers. o Construction of containment lines (up to 24-ft.) on the fire perimeter using dozers, graders, other mechanical equipment, and hand tools. 	Direct Tactics <ul style="list-style-type: none"> • Same as Alternative 1, but will use MIST such as minimum width and depth containment lines, avoidance of waterways, cold-trail tactics. 	Direct Tactics <ul style="list-style-type: none"> • The INEEL <u>will</u> use the following direct tactics: <ul style="list-style-type: none"> o Hose line application of water and/or foam suppressants on burning vegetation near affected facilities. o Aerial delivery of water and/or chemical retardant from helicopters and air tankers on fires that threaten facilities. 	Direct Tactics <ul style="list-style-type: none"> • Same as Alternative 1.
Indirect Tactics <ul style="list-style-type: none"> • The INEEL will use the following indirect tactics: <ul style="list-style-type: none"> o Constructing containment lines ahead of advancing fire. Generally involves the construction of a single or double blade (up to 	Indirect Tactics <ul style="list-style-type: none"> • Same as Alternative 1, but will use MIST such as minimum width and depth containment lines, avoidance of waterways, using existing roads as containment lines. 	Indirect Tactics <ul style="list-style-type: none"> • The INEEL will use the following indirect tactics: <ul style="list-style-type: none"> o Burning large pockets of unburned vegetation near affected facilities. 	Indirect Tactics <ul style="list-style-type: none"> • Same as Alternative 1.

¹ See Section 2.1.1 for full description of suppression activities (staged response, direct tactics, indirect tactics, parallel, and minimum impact suppression tactics).

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Maximum Fire Protection Approach Alternative 1	Balanced Fire Protection Approach Alternative 2	Protect Infrastructure and Personnel Safety Approach Alternative 3	No Action -- Traditional Fire Protection Approach Alternative 4																																
24-ft wide) containment line using dozers, graders, and discs or the widening of existing breaks. <ul style="list-style-type: none"> Burning large pockets of unburned vegetation within fire perimeter. 																																			
Parallel Tactics <ul style="list-style-type: none"> The INEEL will use the following parallel tactics: <ul style="list-style-type: none"> Constructing containment lines parallel to, but further from, the fire edge than in direct attack. Burn the fuel between the containment line and the fire edge. Construct containment lines to effectively check the fire. 	Parallel Tactics <ul style="list-style-type: none"> Same as Alternative 1, but will use MIST such as minimum width and depth containment lines, avoidance of waterways, using existing roads as containment lines. 	Parallel Tactics <ul style="list-style-type: none"> None. 	Parallel Tactics <ul style="list-style-type: none"> Same as Alternative 1. 																																
Minimum Impact Suppression Tactic (MIST) <ul style="list-style-type: none"> The INEEL <u>will not</u> use MIST. 	Minimum Impact Suppression Tactic (MIST) <ul style="list-style-type: none"> The INEEL <u>will</u> use the MIST. 	Minimum Impact Suppression Tactic (MIST) <ul style="list-style-type: none"> The INEEL <u>will not</u> use MIST. 	Minimum Impact Suppression Tactic (MIST) <ul style="list-style-type: none"> The INEEL <u>will not</u> use MIST. 																																
Post-Fire Actions ¹																																			
Dust Suppression and Control The INEEL will suppress and control dust by: <ul style="list-style-type: none"> Applying soil tackifier and/or mulch application to minimize fugitive dust. Stabilizing contaminated soils to prevent the spread of contamination to previously remediated areas. Installing water cannons upwind of affected facilities to control blowing dust and soot through irrigation. Installing snow fences upwind of affected facilities and roads to minimize surface blowing dust and soot. The INEEL will control dust from <u>all</u> SCAs by: <ul style="list-style-type: none"> Installing water cannons or irrigation systems to wet SCAs that have burned to control windblown topsoil and minimize spread of contamination. Applying chemical or tackified surfactant to SCAs to control wind blown topsoil and minimize spread of contamination. 	Dust Suppression and Control <ul style="list-style-type: none"> Same as Alternative 1, except: The INEEL will control dust from only the SL-1 and BORAX SCAs by: <ul style="list-style-type: none"> Installing water cannons or irrigation systems to control windblown topsoil and minimize spread of contamination. Applying chemical or tackified surfactant to control wind blown topsoil and minimize spread of contamination. 	Dust Suppression and Control The INEEL will suppress and control dust by: <ul style="list-style-type: none"> Installing water cannons or irrigation lines to wet burned areas around facility perimeters and major roadways Installing snow fences or similar to control blowing dust at facility perimeters or along major roadways. The INEEL <u>will not</u> control dust from SCAs 	Dust Suppression and Control <ul style="list-style-type: none"> Same as Alternative 3. 																																
<table border="1"> <thead> <tr> <th colspan="4">Table Abbreviations</th></tr> </thead> <tbody> <tr> <td>ANL-W</td><td>Argonne National Laboratory – West</td><td>EBR-1</td><td>Experimental Breeder Reactor I</td></tr> <tr> <td>ARA</td><td>Auxiliary Reactor Area</td><td>INTEC</td><td>Idaho Nuclear Technology and Engineering Center</td></tr> <tr> <td>BORAX</td><td>Boiling Water Reactor Experiment</td><td>SMC</td><td>Specific Manufacturing Capability</td></tr> <tr> <td>NRF</td><td>Navel Reactor Facility</td><td>TRA</td><td>Test Reactor Area</td></tr> <tr> <td>PBF</td><td>Power Burst Facility</td><td>WROC</td><td>Waste Reduction Operation Complex</td></tr> <tr> <td>RWMC</td><td>Radioactive Waste Management Complex</td><td>WRRTF</td><td>Water Reactor Research Test Facility</td></tr> <tr> <td>CFA</td><td>Central Facilities Area</td><td></td><td></td></tr> </tbody> </table>				Table Abbreviations				ANL-W	Argonne National Laboratory – West	EBR-1	Experimental Breeder Reactor I	ARA	Auxiliary Reactor Area	INTEC	Idaho Nuclear Technology and Engineering Center	BORAX	Boiling Water Reactor Experiment	SMC	Specific Manufacturing Capability	NRF	Navel Reactor Facility	TRA	Test Reactor Area	PBF	Power Burst Facility	WROC	Waste Reduction Operation Complex	RWMC	Radioactive Waste Management Complex	WRRTF	Water Reactor Research Test Facility	CFA	Central Facilities Area		
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Site Restoration <ul style="list-style-type: none"> The INEEL will implement site restoration 	Site Restoration <ul style="list-style-type: none"> Same as Alternative 1 	Site Restoration <ul style="list-style-type: none"> None 	Site Restoration <ul style="list-style-type: none"> None 																																

¹ See Section 2.1.1 for full description of post-suppression activities (dust suppression and control, site restoration, and the wildland fire management committee).

Table 2-1. Comparison of INEEL wildland fire management strategies and actions – pre-fire, fire suppression, and post-fire.			
Wildland Fire Management Strategy			
Maximum Fire Protection Approach Alternative 1	Balanced Fire Protection Approach Alternative 2	Protect Infrastructure and Personnel Safety Approach Alternative 3	No Action -- Traditional Fire Protection Approach Alternative 4
activities.			
Wildland Fire Management Committee <ul style="list-style-type: none"> Put into operation a Wildland Fire Management Committee to address post-fire activities. 	Wildland Fire Management Committee <ul style="list-style-type: none"> Same as Alternative 1 	Wildland Fire Management Committee <ul style="list-style-type: none"> None 	Wildland Fire Management Committee <ul style="list-style-type: none"> None